U.S. Army Center for Health Promotion and Preventive Medicine

Just the Facts

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Needlestick Exposures and Disease

- **General Public/ Healthcare Community**
- **Information**
- **Health Risks and Viral Infections**

People who sustain a needlestick or similar type of exposure to blood or body fluids are at possible risk for development of several transmissible diseases. The most important of these diseases are human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis non-A and non-B.

Human Immunodeficiency Virus

Human immunodeficiency virus is not easily transmitted through needlestick exposures. Even when the source of the blood is infected with HIV, the chance of contracting the disease through a needlestick is approximately 1 in 250. This risk was determined by careful follow-up of about 2000 persons exposed by needlestick to known positive sources. If the source of the needlestick is unknown or not at risk for HIV, then the chance the source is positive is probably less than 1 in 100.

The licensed healthcare professional (LHCP) will assess any significant risk to employees. Medical follow-up, which will involve a series of blood tests over the following year, will determine the employee's infectivity or noninfectivity. If the risk is insignificant, an employee may still request and receive the tests and undergo medical follow-up.

Should fever, chills, and muscle aches develop during the 12 weeks following a needlestick, schedule a reevaluation since there is a possibility these nonspecific symptoms are related to HIV. (Most such illnesses, however, are not related to HIV.)

Hepatitis B

The most prevalent form of hepatitis, HBV is a viral infection involving the liver and is the main risk associated with needlestick exposures. Hepatitis B virus is transmitted much more easily than HIV. Infection occurs within 5-30 percent of those exposed to a known positive source. Healthcare workers are 20 times more likely to contract HBV than the normal population. It is estimated there are as many as 18,000 new cases of HBV each year among healthcare workers, which results in 200-300 deaths.

In healthcare settings, HBV is most often transmitted through breaks in the skin or mucous membranes. This usually occurs through needlesticks, human bites, or when infectious material (such as blood or other body fluids) enters existing cuts or abrasions.

While there is no cure for HBV, a vaccine does exist that can prevent infection. After exposure, it can take 2-6 months for HBV to develop. People who are infected will often show no initial symptoms. It is very important to remember, then, that vaccinations begun immediately after exposure to the virus can often prevent infection.

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The LHCP will assess the risk of the exposure and prescribe appropriate therapy and/or follow-up. The symptoms of HBV infection are very much like a mild "flu." Initially, there is a sense of fatigue, abdominal pain, loss of appetite, and nausea. Jaundice (a distinct yellowing of the skin) and darkened urine will often occur as the disease develops. An employee who develops these symptoms during the 6 months following exposure should schedule a reevaluation.

Hepatitis Non-A and Non-B

Hepatitis non-A and non-B is the viral liver infection most commonly associated with blood transfusions. The likelihood of acquiring this infection from a needlestick is unknown. The LHCP will assess the risk of the exposure and initiate the suggested therapy and follow-up. Symptoms which should prompt reevaluation are like those described for HBV.

An Alphabet of Hepatitis

TYPE	DESCRIPTION AND TRANSMISSION	CHRONIC FORM AND TESTS
HEPATITIS A	Formerly known as infectious hepatitis. Spread by enteric (fecal-oral) transmission, often through shellfish from polluted waters or by food handlers.	No chronic form. Commercial blood test available.
HEPATITIS B	Formerly known as serum hepatitis; spread by parenteral (blood-borne) transmission, for example by sexual intercourse or contaminated needles or from mother to child; 50% of cases have no symptoms.	10% become chronic carriers; of these, 25% develop chronic liver disease leading to liver cancer or cirrhosis. Almost 1% of U.S. population, about 2 million people, are chronic carriers. Commercial blood test available.
HEPATITIS C	Once called non-A, non-B. Spread by parenteral transmission, but sexual transmission is probably less efficient than for hepatitis B; 70% have no symptoms.	Virtually all who get it may be chronically infected; chronic inflammation may occur in about 60%. Commercial blood test for infection; determining carrier status may require specialized tests.
DELTA HEPATITIS	Also called hepatitis D. Involves a defective virus that can replicate only in the presence of hepatitis B; not common in U.S.	Has chronic form, but people who have it will have chronic B as well. Commercial test available.
HEPATITIS E	Enterically transmitted; outbreaks reported in several third world countries, but not in the U.S.	No chronic form known. No commercial test available, only research-based tests.

Note: Hepatitis C and E are both called non-A, non-B. Hepatitis C is parenterally transmitted non-A, non-B. Hepatitis E is enterically transmitted non-A, non-B.

Source: Dr. Louis B. Polish/Centers for Disease Control